

What is claimed is:

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1. A solar control article, comprising:
a substrate having a surface;
at least one antireflective layer deposited over the
5 substrate surface; and
at least one infrared reflective film deposited over
the at least one antireflective layer,
such that the coated article has a transmittance
greater than about 55%, a shading coefficient less than about
10 0.33 and a reflectance less than about 30%.

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2. The article as claimed in claim 1, wherein the
article includes a first antireflective layer, a second
antireflective layer, a third antireflective layer, a first
15 infrared reflective layer and a second infrared reflective
layer, with the first infrared reflective layer deposited over
the first antireflective layer and the second infrared
reflective layer deposited over the second antireflective
layer and with the third antireflective layer deposited over
20 the second infrared reflective layer.

3. The article as claimed in claim 2, including a
first primer layer deposited over the first infrared
reflective layer and a second primer layer deposited over the
25 second infrared reflective layer.

4. The article as claimed in claim 2, wherein the
antireflective layers include metal-oxide films selected from
one or more metal oxides, oxides of metal alloys, doped metal
30 oxides and mixtures thereof.

5. The article as claimed in claim 2, wherein the
one or more metal oxides are selected from zinc oxide,
titanium oxide, hafnium oxide, zirconium oxide, niobium oxide,
35 bismuth oxide, indium oxide, tin oxide and mixtures thereof.

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12 6. The article as claimed in claim 2, wherein the metal alloys are selected from the group consisting of zinc stannate, tin alloys, fluorine doped tin, antimony doped tin, and indium-tin alloys.

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10 7. The article as claimed in claim 2, wherein at least one of the antireflective layers comprises a plurality of antireflective films.

8. The articles as claimed in claim 2, wherein the infrared reflective films include at least one metal selected from the group consisting of gold, copper, platinum, and silver and mixtures thereof.

15 9. The article as claimed in claim 2, wherein the first antireflective layer has a thickness of about 272 to about 332 angstroms, the second antireflective layer has a thickness of about 198 to about 836 angstroms and the third
20 antireflective layer has a thickness of about 60 to about 273 angstroms.

25 10. The article as claimed in claim 2, wherein the first infrared reflective layer has a thickness of about 86 to about 269 angstroms and the second infrared reflective layer has a thickness of about 159 to about 257 angstroms.

30 11. The article as claimed in claim 3, wherein the first and second primer layers each have a thickness of about 15 to about 30 angstroms.

35 12. The article as claimed in claim 2, wherein the thickness of the second infrared reflective layer is about 50 to about 100% greater than the thickness of the first infrared reflective layer.

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and

13. The article as claimed in claim 2, including a protective overcoat deposited over the third antireflective layer.

14. The article as claimed in claim 1, wherein the substrate is selected from the group consisting of glass, plastic and ceramic.

10 15. The article as claimed in claim 1, wherein the article is an insulated glass unit.

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15 16. A solar control coated article, comprising:
a substrate having a surface;
a first antireflective layer deposited over a substrate surface;
a first infrared reflective layer deposited over the first antireflective layer;
a first primer layer deposited over the first infrared reflective layer;
20 a second antireflective layer deposited over the first primer layer;
a second infrared reflective layer deposited over the second antireflective layer;
25 a second primer film deposited over the second infrared reflective layer; and
a third antireflective layer deposited over the second primer layer, such that the coated article has a transmission of greater than about 55%, a shading
30 coefficient of less than about 0.33 and an external reflectance of less than about 30%.

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17. The article as claimed in claim 16, wherein the article has a substantially neutral color.

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5 18. The article as claimed in claim 16, wherein the article has a transmittance greater than about 55%, a shading coefficient of less than about 0.32 and an external reflectance less than about 20%.

19. The article as claimed in claim 16, wherein the substrate is selected from the group consisting of glass, plastic and ceramic.

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10 20. The article as claimed in claim 16, wherein the antireflective films include a metal oxide film selected from the group consisting of metal oxides, metal alloys, doped metal oxides and mixtures thereof.

15 21. The article as claimed in claim 20, wherein in the metal oxides are selected from the group consisting of zinc oxide, titanium oxide, hafnium oxide, zirconium oxide, niobium oxide, bismuth oxide, indium oxide, tin oxide and mixtures thereof.

20 22. The article as claimed in claim 20, wherein the metal alloys are selected from the group consisting of zinc stannate, fluorine doped tin, antimony doped tin, and indium-tin alloys.

25 23. The article as claimed in claim 20, wherein the doped metal oxides are selected from the group consisting of antimony doped tin oxide and indium doped tin oxide.

30 24. The article as claimed in claim 16, wherein the first infrared reflective layer includes a metal from the group consisting of gold, copper, platinum, and silver and mixtures thereof.

25. The article as claimed in claim 16, where at least one of the first, second, or third antireflective layers includes a plurality of antireflective films.

26. The article as claimed in claim 16, wherein the primer layer includes titanium.

27. The article as claimed in claim 16, including a protective, metal containing overcoat deposited over the third antireflective layer.

28. The article as claimed in claim 16, wherein the article is an insulated glass unit.

29. The article as claimed in claim 16, wherein the first antireflective layer has a thickness of about 272 to about 332 angstroms, the second antireflective layer has a thickness of about 198 to about 836 angstroms and the third antireflective layer has a thickness of about 60 to about 273 angstroms.

30. The article as claimed in claim 16, wherein the first infrared reflective layer has a thickness of about 86 to about 269 angstroms and the second infrared reflective layer has a thickness of about 159 to about 257 angstroms.

31. The article as claimed in claim 16, wherein the first and second primer layers each have a thickness of about 15 to about 30 angstroms.

32. A method of making a solar control article, comprising the steps of:

providing a substrate having a surface;

depositing at least one antireflective layer

over the substrate surface; and

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depositing at least one infrared reflective layer over the at least one antireflective layer such that the coated article has a transmittance greater than about 55%, a shading coefficient less than about 0.33 and a reflectance less than about 30%.

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33. The method as claimed in claim 32, including depositing a first infrared reflective film over a first antireflective layer, depositing a second infrared reflective film over a second antireflective layer and depositing a third antireflective layer over the second infrared reflective film.

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34. The method as claimed in claim 32, including depositing a first primer film over the first infrared reflective film and depositing a second primer film over the second infrared reflective film.

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35. The method as claimed in claim 32, wherein the article has a substantially neutral color.

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36. The article as claimed in claim 32, wherein the antireflective layer depositing step is practiced by depositing a plurality of antireflective films to form the at least one antireflective layer.

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37. The method as claimed in claim 33, wherein the first infrared reflective film has a thickness of about 86 to about 269 angstroms and the second infrared reflective film has a thickness of about 159 to about 257 angstroms.

38. The method as claimed in claim 34, wherein the first and second primer films each have a thickness of about 15 to about 20 angstroms.

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